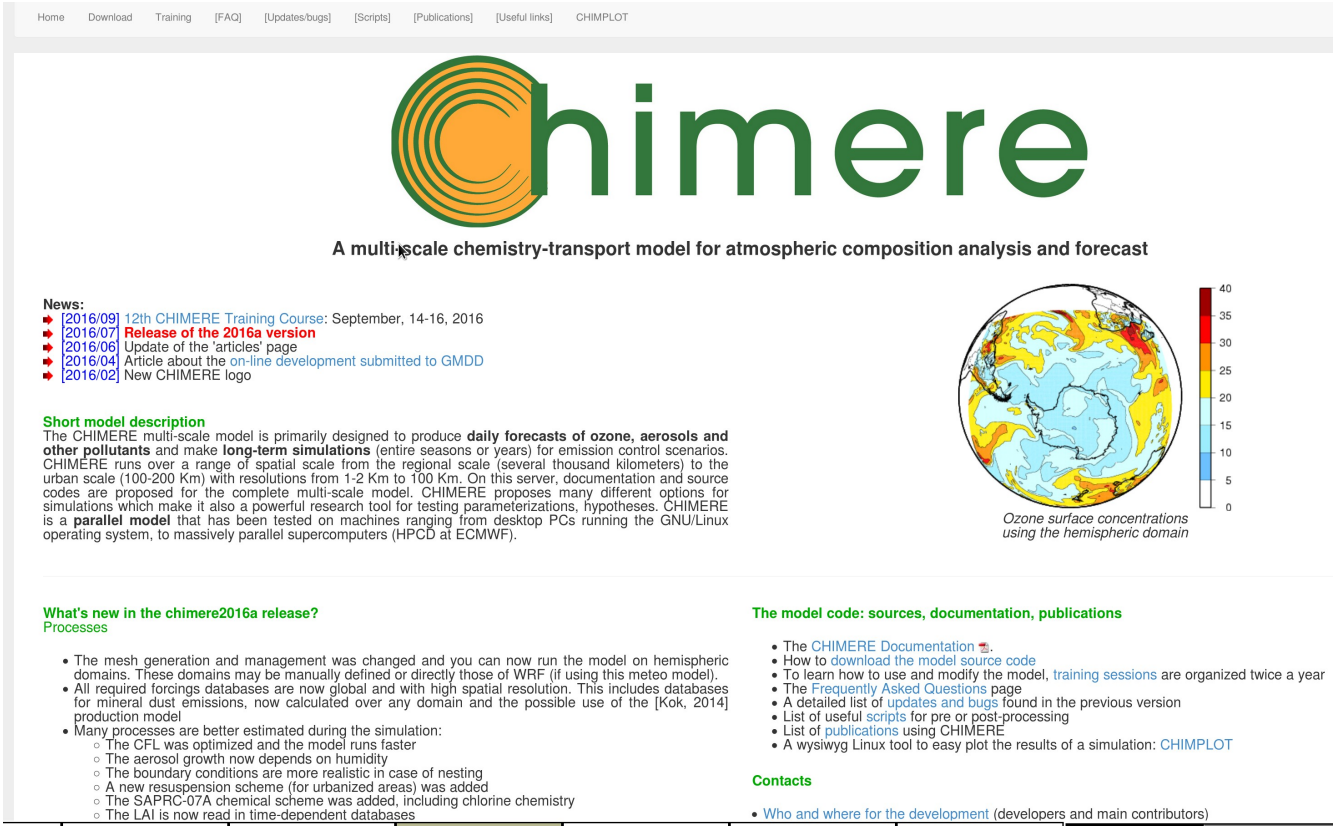
CHIMERE Training Course

Run CHIMERE and visualize results

Dmitry Khvorostyanov, Laurent Menut, Myrto Valari
Laboratoire de Météorologie Dynamique IPSL
Ecole Polytechnique, 91128 Palaiseau Cedex

Contact: chimere@lmd.polytechnique.fr



Install CHIMERE: download and configure

1. Use the script **chimere-download.sh** to download CHIMERE code and data:

    $ chmod +x chimere-download.sh

    $ ./chimere-download.sh <login> <password>

➔ You need to specify the BIGFILES root directory where to download the data (land use, etc.)

2. Configure your mychimere.sh: create a version for your system, libraries, and Fortran compiler

- *At this time a Fortran compiler, a corresponding NetCDF library, and MPI need to be installed on your computer*
- *The NetCDF and MPI libraries must be compiled with the same compiler as CHIMERE*
- *You need to use netcdf4/hdf5 because of large input files (e.g land use datasets) used in CHIMERE*

    $ ./config.sh mychimere.sh.gfortran

Attention ! If using gfortran, make sure you are using version 4.7.2 or later !

Q: Take a look at *mychimere.sh*. What kind of file is it ? A regular file?

Compile and run Chimere:

- ./chimere.sh c
- *edit* chimere.par
- chimere.sh [<date>]

If you have errors running CHIMERE, it is often necessary to 'make clean' and remove the **chemprep/inputdata**... directory

Tasks

1. Run CHIMERE for the March 2009 winter-time PM pollution event test case.
   - Modify chimere.par : $bigifilesdir, $nhours, $simuldir, $meteo_file
   - Run chimere.sh for 9 days (216 hours) from March 7, 2009

- nedit chimere.par &
  1) bigifilesdir= path to your BIGFILES directory given when running *chimere-download.sh*
  2) nhours=216
  3) Possibly some data directories: datadir, metdir, aemisdir, iniboundir, so that CHIMERE knows where to take data from a previous run (if, e.g., imakebound=2)
  4) if you do not have a write permission to BIGFILES dir: simuldir=`pwd`/OUTPUTS
  5) If you comment out meteo_file, *interf-WRF* will try to find the WRF file with appropriate date in the meteo_DIR directory.

- ./chimere.sh 20090307 216
- or just ./chimere.sh if you prefer to use the values di and nhours specifed in chimere.par

Tasks (continued)

2. Use CHIMPLOT to interactively plot slices of data

- Download CHIMPLOT at http://www.lmd.polytechnique.fr/chimplot/
- Make sure the Scientific Python is in your PATH:

$> which python

<something>/epd-7.0-2-rh5-x86/bin/python

If you get /usr/bin/python => the standard python is being used by default. So you need to add scientific python's libraries in your path, as well as CHIMPLOT.

$ *source set_paths.sh*

$ ./chimplot.py [file_name.nc]

3. Analyze the simulation

When the simulation is ready, explore the model outputs using Chimplot. A few questions to consider:

- Are the simulated fields in agreement with the figures shown in the Documentation (section 2.7)?

- What is the meteorological situation during the pollution event?

- Did emission changes contribute to the simulated peaks?

- See if during the simulation period, model concentrations reached or exceeded alert or information threshold levels for O3, NO2, PM10, PM25, SO2, CO:

http://www.airparif.asso.fr/reglementation/normes-europeennes

Tip: You can use CHIMPLOT's “Locate Max” function (in the main menu).